

Marital status and hospital use

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SUMMARY Published data from the Hospital In-Patient Enquiry (1973) are used to examine the relationship between hospital use and marital state. Non-married men and women are shown to have higher discharge rates and longer mean durations of stay than married patients in the corresponding age groups, and to account, on average, for about 24 000 additional beds each day in non-psychiatric hospitals. Hospital Activity Analysis data from one region suggest that the higher rates of bed use by non-married patients as a whole are maintained for both single and widowed patients separately, and the differences are also observed in all types of non-psychiatric hospitals. Two possible modes of explanation are discussed: that the incidence and possibly the severity of conditions that are normally treated in hospital may be differentially distributed among marital status groups; and that non-clinical factors in decisions about admission and discharge may be associated more commonly with non-married than married patients. The results carry no normative implications for the uses to which hospital resources should be put.

It has frequently been observed that single people make greater use of hospitals than those who are married. Almost a century ago the Lunacy Commissioners (1889) noted that 'at marriageable ages, and in proportion to the population, considerably more single than married or widowed persons are admitted to the asylums of England and Wales'. More recent evidence confirms that the non-married continue to be disproportionately represented among those admitted to and resident in psychiatric hospitals (Price *et al.*, 1971; Baldwin, 1971; Department of Health and Social Security, 1975), and similar findings have also been reported from other countries (Kramer, 1969; Bachrach, 1975). Non-married people also seem more likely to enter geriatric care. Kay *et al.* (1962) reported 'a marked excess of both single and widowed and a deficiency of married people' among patients over 65 years old admitted to the geriatric wards of the Newcastle General Hospital between 1957 and 1960, and Isaacs *et al.* (1972) likewise found a predominance of single and widowed patients, in relation to population, among a consecutive series of admissions to the geriatric department of the Glasgow Royal Infirmary in 1966-67.

Although such findings may seem unremarkable in relation to psychiatric hospital care, it is less obvious that they should also appear across the range of non-psychiatric hospital care. Using 1951 census data, Abel-Smith and Titmuss (1956) found

that 'for all types of hospital, and in relation to their numbers in the total adult population, the single, widowed and divorced make about double the demand on hospital accommodation compared with married people'. More recently, the 1971 census showed that 43% of men and 62% of women aged 20 years or more in non-psychiatric hospitals were not married, compared with 23% and 31% respectively among men and women aged 20 years or more in the total population (Office of Population Censuses and Surveys, 1974). Although these comparisons are not standardised for age, they suggest that the magnitude of the differences noted by Abel-Smith and Titmuss remained of a similar order in 1971 as in 1951.

The objectives of this paper are firstly, to use information from the Hospital In-Patient Enquiry (HIPE) and Hospital Activity Analysis (HAA) to elaborate the relationship between marital state and non-psychiatric inpatient use, and secondly, to indicate possible causes and consequences of the relationship.

Hospital In-Patient Enquiry

Between 1964 and 1970 and in 1973, the published HIPE reports have included a table showing daily bed use, discharge rates and mean durations of stay, by diagnosis, for patients in each age, sex, and marital group. The data discussed in this section are drawn from the 1973 report only, but the same analyses for the earlier years show a

remarkably similar pattern (Butler and Morgan, 1974). The data on marital state in HIPE is far from perfect. Firstly, patients are classified simply as 'married' or 'other', the latter including not only the widowed, divorced, single, and separated but also those whose status was unknown or unrecorded. Secondly, the unit of analysis in HIPE is the episode of hospitalisation, not the patient. Thus, higher discharge rates among non-married than married patients could result from a greater proportion of multiple admissions or transfers among the non-married rather than the fact that more non-married people are admitted. Thirdly, no adequate check is available on the accuracy of the recording of marital state. Comparisons between the recording of marital state in clinical notes and on HAA and Scottish Hospital In-Patient Statistics (SHIPS) data tapes indicate a concordance of at least 96% (Lockwood, 1971; Martini *et al.*, 1976), but it is possible that more errors will be made in the initial recording of marital state in the clinical notes. The first two of these three potential sources of inadequacy are partially overcome in HAA, from which data are presented later in the paper.

USE OF BEDS

The average number of beds used daily, set out in Table 9 of the 1973 HIPE report, were converted to rates per million population, specific for age, sex, and marital state. Conditions of pregnancy, childbirth, and puerperium (ICD codes A112-118 and Y60-61) have been omitted. The results (Table 1) show a higher rate of bed use for non-married than for married patients in each age and sex group.

Table 1 Average daily rates of bed use per million population by age, sex, and marital status (HIPE, 1973)

Age group (years)	Men		Women	
	Married	Non-married	Married	Non-married
25-34	864	1515	1 237	1 782
35-44	1 267	2 597	1 799	3 879
45-64	2 968	7 663	2 620	5 032
65-74	6 936	14 594	5 734	9 454
75+	13 414	28 926	16 577	27 417

In almost every case the non-married rate was at least one-and-a-half times the married rate, the difference being somewhat greater among men. Rates of bed use were higher for non-married than married patients for almost all major causes of admission.

The higher rate of bed use by non-married patients may be owing to a higher discharge rate among this group or a longer average duration of stay, or to a combination of these factors. The

discharge rates per 10 000 population and the mean lengths of stay of married and non-married patients were therefore compared, and the relative contribution of each factor to the differential rate of bed use was assessed. Discharge rates in 1973 were higher for non-married than for married patients in each age and sex group (Fig. 1). The ratio of the discharge rate of non-married to married patients was higher for men than for women at all ages, and it was also higher for younger than for older patients.

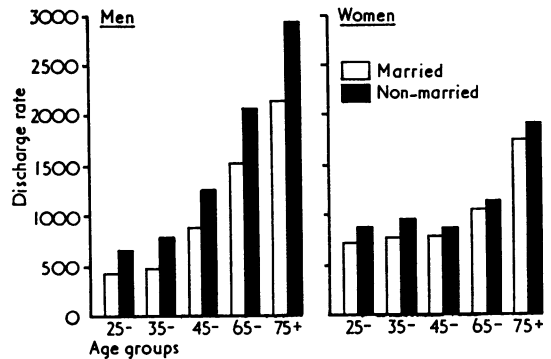


Fig 1 Discharge rates per 10 000 population (HIPE, 1973).

As with discharge rates, the average lengths of stay were also greater for non-married than for married patients in each age and sex group (Fig. 2). The ratio of the average length of stay of married to non-married patients was highest for patients in the middle age group (45-64 years), lowest for those in the youngest age group (25-34 years), and intermediate for patients in the highest age groups (65-74 and 75 years and over). Combining the data on discharge rates and mean durations of stay, the

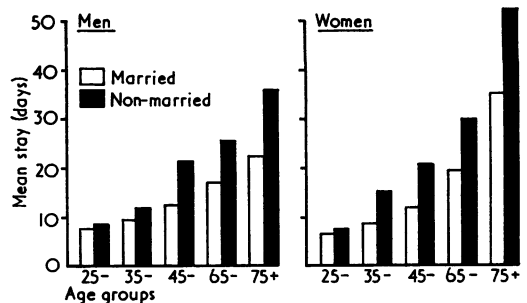


Fig. 2 Mean durations of stay (HIPE, 1973).

1973 HIPE tabulations show that the higher rates of bed use by non-married people in that year were owing both to their higher discharge rates and their longer average stays in hospital, with the relative effect of each factor varying with age. The differences in discharge rates became less important with increasing age, while the differences in lengths of stay were more important among middle-aged patients than those in either the older or younger age groups.

ADDITIONAL BEDS USED BY THE NON-MARRIED

These differences in discharge rates and lengths of stay can be converted into estimates of the *additional* average number of beds used each day by non-married patients by calculating, for each age and sex group, the number of beds these patients would have occupied if they had had the same discharge rate and the same length of stay as the corresponding group of married patients. The calculation is made by substituting first the discharge rate and then the mean duration of stay of the matching group of married patients in calculating the 'assumed' rate of bed use by non-married patients, and converting the resulting rate to numbers of beds. The additional daily bed use is simply the difference between the number of beds actually used and the number that would have been used under each assumption. The formulae for deriving the 'assumed' number of beds are given beneath Table 2.

The results (Table 2) show that non-married men occupied about 6600 additional beds each day as a result of their higher discharge rates and about

8100 additional beds as a result of their longer average durations of stay. Put the other way, the non-married men would have occupied some 6600 fewer beds each day if they had had the same discharge rates as the corresponding group of married men, and a further 8100 fewer beds if they had had the same average lengths of stay. Among women some 5100 additional beds were used each day, on average, by non-married women as a result of their higher discharge rates and about 23 600 additional beds as a result of their longer average lengths of stay. The increased length of stay of non-married people, particularly women aged 75 years and over, is clearly seen as a major ingredient in the additional bed use by the non-married.

These calculations of the additional beds used by non-married patients are marred by the size of the age bands used in the HIPE tabulations. At all ages, but particularly in the two highest age groups, the age distribution is different for married and non-married people *within* each group, which means that the age bands used in the above analyses offer only a partial control for the effects of age upon the observed variations. It is expected that, by using narrower age bands, the number of additional beds derived from the above calculations would diminish. In order to gauge the magnitude of this discrepancy, separate estimates were made of the rates of bed use by married and non-married patients within quinary groups between 25 and 90. The denominator of the rate for each group was taken from the 1971 census (England and Wales); the numerator was derived by assuming that the number of beds actually used by patients in each HIPE age band was distributed among the quinary

Table 2 *Average number of additional beds used resulting from the higher discharge rates and longer average duration of stay of non-married compared with married patients (HIPE, 1973)*

Sex	Age group (years)	Beds used daily by non-married patients			Additional beds resulting from:	
		Actual number	Assuming DR of married patients*	Assuming MDS of married patients†	Higher DR	Longer MDS
Men	25-34	1 139	724	1 018	415	121
	35-44	992	619	774	373	218
	45-64	5 893	3 963	3 411	1 930	2 482
	65-74	5 604	4 079	3 669	1 525	1 935
	75+	9 025	6 655	5 673	2 370	3 352
	Total	22 653	16 040	14 543	6 113	8 108
Women	25-34	811	652	695	159	116
	35-44	1 249	1 011	715	238	534
	45-64	6 980	6 336	3 996	644	2 984
	65-74	12 555	11 595	8 239	960	4 316
	75+	36 574	33 440	24 185	3 134	12 389
	Total	58 169	53 034	37 830	5 135	20 339

$$* \text{Calculated as } \frac{DR_m \times MDS_{nm} \times P_{nm}}{\text{Days in year} \times 10\,000}$$

$$\dagger \text{Calculated as } \frac{DR_{nm} \times MDS_m \times P_{nm}}{\text{Days in year} \times 10\,000}$$

Where DR = discharge rate per 10 000 population; MDS = mean duration of stay (days); P = population; m and nm = married and non-married respectively

groups comprising that band in the same proportion as the number of patients. The number of patients was taken from the 1971 census tabulations of patients in non-psychiatric hospitals, which are arranged by sex, marital status, and quinary age groups. By comparing the additional beds used by non-married patients derived from the two sets of rates (that is, the rate calculated from the HIPE age groups and the rate calculated from the quinary age groups), an estimate is reached of the distortion resulting from the large size of the HIPE age bands. The results suggest that the data on the additional beds used by non-married men should be deflated by about 7%, and the additional beds used by non-married women by about 40%. Even allowing for this, the figures for bed use remain sufficiently high to justify further investigation. For example, the 1973 HIPE data show that, after applying these deflation factors, the additional beds used by non-married men and women as a result of their longer duration of stay amounted to about 15 600, and the additional beds resulting from their higher discharge rates amounted to some 8200.

Hospital Activity Analysis

Data from the HAA were used to overcome some of the deficiencies in the published HIPE tabulations. Printouts were obtained for one complete region (South-east Thames) and one full year (1975), identifying transferred patients separately and classifying each patient according to his individual marital state. In addition, the data were arranged by type of hospital, making it possible to see whether the variations in hospital use between the married and non-married were more marked in, say, long-stay and geriatric hospitals than in acute hospitals. Although it obviously cannot be claimed that this region is typical of the entire country, it was hoped that the analysis would allow broad conclusions to be drawn about the patterns of use between patients in each marital category and hospital type, and also permit evaluation of the effect of transfers.

Like HIPE, however, HAA is by no means perfect for this purpose. Firstly, apart from identifying transferred patients, it offers no solution to the problem of identifying those who are admitted on two or more separate occasions during the year. Information from the Oxford Record Linkage Study suggests that married patients are just as likely to experience multiple admissions as non-married patients (Acheson and Barr, 1965), but more extensive data are needed. Secondly, the accuracy of the recording of marital state is as problematic in HAA as in HIPE because the two data sets

draw upon the same record form. The HAA tabulations do, however, enable patients of unknown marital state to be identified, and these have been excluded from the analyses in this section. They comprised 13% of male and 12% of female adult patients leaving non-psychiatric hospitals in the South-east Thames region in 1975. It is not known how typical they are of all patients, but observation of the completion of HMR1 forms in one district general hospital suggests that this group may include a disproportional number of non-married patients. In the absence of direct information on marital state, those who are currently married are often identified from information about the next of kin (that is, the spouse), but such information is not as helpful in classifying the single, widowed, and divorced. It is therefore possible that the exclusion of those of unknown marital state may result in an underrepresentation of the non-married in the regional HAA data.

A total of 121 non-psychiatric hospitals in the region were used, classified in four broad categories:

1. Acute (71 hospitals, including 11 mainly acute and two partly acute)
2. Long-stay and geriatric (30 hospitals, including five mainly long-stay)
3. Convalescent, preconvalescent, and rehabilitation (six hospitals)
4. Specialist (14 hospitals)

Although it was intended that all admissions for conditions of pregnancy, childbirth, and puerperium should be omitted, some maternity cases were inadvertently included, and for that reason all women under 45 years of age admitted to hospitals in the acute category are excluded from the analyses.

USE OF BEDS

The HAA data for this one region showed that the higher average rate of daily bed use among non-married patients was not restricted to any particular marital category: in each age group over 25 years for both men and women the average daily rates of bed use were generally higher for single, widowed, and divorced patients than for married patients. The only exception was for divorced women in the age groups 65-74 and 75 years and over whose rates of bed use were lower than for the corresponding groups of married women, but numbers were small. Moreover, the higher rates of bed use by single and widowed patients also held good in each of the four hospital categories. The only significant exceptions (that is, those where the number of patients exceeded 10) were for single

women aged 45-64 and 75 years and over in the acute category whose rates of bed use were slightly lower than those of married women in the corresponding age groups. Table 3 summarises these data.

Discharge rates for the region showed that single and widowed men had higher rates of discharge than married men in each age group and in each of the four hospital categories. Among the women, by contrast, no clear-cut pattern emerged; discharge rates for single and widowed women were in some cases higher and in some cases lower than for married women in the corresponding age groups. This finding is consistent with the HIPE data that differences in discharge rates between married and non-married people were much less marked for women than for men, particularly in the older age groups.

Data on the mean lengths of stay in the region indicate that the longer average durations of stay of non-married patients shown in HIPE were not confined to any particular hospital or marital category; the mean lengths of stay of single and widowed men and women were higher than for the corresponding groups of married patients in each age group and for each hospital category. Unlike the discharge rates, however, which showed no consistent variation between the single and the widowed, the average length of time in hospital was almost invariably greater for single men and women than for widowed men and women, regardless of age or type of hospital. The only reversal was for men aged 25-44 years, where the widowers stayed for longer periods of time than the single men.

These variations in rates of bed use were converted into estimates of the additional number of beds used each day by non-married patients, using the method described above. The results show that, although the differences between the rates of bed use of married and non-married patients were greater in long-stay and geriatric than in acute hospitals (Table 3), the number of additional beds used by non-married patients was

heavily concentrated in the acute hospitals because of the large proportion of all beds that they contained. For example, 600 of the 1090 additional beds used each day in the region by non-married men and women aged 45 years and over were located in acute or partly acute hospitals.

TRANSFERS

Among patients over the age of 24 years who were discharged alive from the non-psychiatric hospitals in the region, 7% of men and 8% of women were transferred to other NHS hospitals or convalescent homes. Relatively more transfers were made from acute and long-stay and geriatric than from convalescent and specialist hospitals. Transfer rates were also higher for single and widowed than for married patients of all ages, the differences increasing with rising age. Among men aged 65-74 years in the region, 8% of those who were married were transferred elsewhere on leaving hospital compared with 12% of the single and 13% of the widowed. For men aged 75 years and over, the proportions of transfers were 11%, 14%, and 16% respectively for the married, single, and widowed. For women aged 65-74 years, 9% of those who were married were transferred, 13% of the single, and 12% of the widowed. The corresponding figures for women aged 75 years and over were 13%, 19%, and 18%.

These figures suggest that a part of the higher admission rate among non-married patients may result from transfers rather than new admissions. The variations between marital groups in rates for new admissions could therefore be smaller than suggested in HIPE. Against this, however, the difference in the true length of stay between married and non-married patients is probably greater than the HIPE data indicate, for a patient who is transferred to another hospital would be recorded as two separate admissions and hence as two separate (and shorter) periods of hospital stay.

Discussion

The data presented in this paper confirm the

Table 3 Average daily rates of bed use per million population of single, married, and widowed patients in acute and long-stay/geriatric hospitals (HAA, South-east Thames region, 1975)

Sex	Age group (years)	Acute hospitals			Long-stay and geriatric hospitals		
		Single	Married	Widowed	Single	Married	Widowed
Men	25-44	2 291	934	2 111	819	55	—
	45-64	4 825	2 558	4 850	713	132	477
	65-74	10 398	6 185	9 636	1 645	553	1 279
	75+	14 368	10 655	15 805	4 447	2 109	3 580
Women	25-44				711	79	25
	45-64	2 177	2 206	2 741	855	190	414
	65-74	4 832	4 630	5 316	1 139	633	1 008
	75+	11 012	11 681	14 247	5 366	4 004	6 396

indications from earlier studies of a substantially higher rate of hospital use by non-married than married people. The differences have been observed among men and women of all ages in all types of non-psychiatric hospitals, and in most cases they reflect both higher admission rates and longer average durations of stay. The non-married as a whole use a substantial number of additional beds each day compared with their married counterparts, although certain subgroups account for particularly large shares of the additional beds. One such group comprises elderly widowed people: in the South-east Thames region in 1975 widowed patients over the age of 64 years accounted for more than half of the additional beds used each day in non-psychiatric hospitals by all non-married patients. Another group which accounts for a large portion of the additional beds is that of single people aged between 25 and 44 years.

The literature contains two strands of evidence and analysis that may be relevant to an understanding of these variations in hospital use. The first concerns the biological causes and consequences of occupying a particular status, and draws upon epidemiological evidence of the distribution of illness and death between marital status groups. Mortality data from many countries point consistently towards higher age- and sex-specific death rates among the non-married than the married for almost all main causes of death (for example, Shurtleff, 1956; Lerner and Anderson, 1963). In England and Wales, the most recent data show that, for both sexes and in almost all age groups between 15 and 84 years, death rates in 1965-67 were higher among the single, the widowed, and the divorced than among married people (General Register Office, 1971). The only groups experiencing lower death rates than the married were single and divorced men over 74 years old and divorced women aged between 65 and 74 years. The measurement of morbidity is notoriously less reliable than that of mortality, but similar marital variations have been noted in studies of sickness absence rates and self-reported illnesses in general populations (La Horgue, 1960; Wan, 1972; Office of Population Censuses and Surveys, 1973).

Such data suggest that the incidence and possibly the severity of conditions that are normally treated in hospital may be greater in people who are not married than those who are; they may therefore enter hospital more frequently, and stay longer, in part because they suffer from more illnesses of the kind that usually result in inpatient care. Although outside the main scope of this paper, it is interesting to speculate upon the processes underlying the different mortality and

morbidity experiences of married and non-married people. Apart from possible variations in illness behaviour, two plausible hypotheses are discussed in the literature: that the less fit are more likely to be selected out of marriage and remarriage (after widowhood or divorce) than those who enjoy better health (Zalokar, 1960), and that the physical, social, and emotional environment of the non-married is in some way more injurious to health than that of married people (Bachrach, 1975). Illustrations of the risks to health that may be associated with the circumstances and lifestyles of particular marital states are seen in the increased mortality among recently bereaved spouses (Parkes *et al.*, 1969), and in the higher death rates from accidental causes among young single rather than young married people.

The second strand that may be relevant to understanding the marital variations in hospital use concerns the social causes and consequences of occupying a particular status, and draws upon evidence of the mixture of clinical and non-clinical criteria that are taken into account in admission and discharge decisions (Forsyth and Logan, 1960; Mackintosh *et al.*, 1961; Butler and Pearson, 1970). Procedures that are carried out on an outpatient or primary care basis for some patients may result in hospital admission for others whose physical and social environment is regarded as unsuited to extramural care. To the extent that non-married people are more likely than married people to be living in such an environment, correspondingly more of them will probably be admitted to hospital at times of illness and will stay for longer periods of time. This explanation assumes that, to some extent, different criteria may be applied to married and non-married patients in deciding whether to admit and when to discharge: the non-married may be admitted more frequently than the married patient for care that does not essentially require a hospital setting, and he may more commonly be detained in hospital. However there is lack of evidence that the non-married patient is more likely than the married to be living in circumstances that clinicians actually take into account in decisions about admitting and discharging patients. Household structure is commonly cited as an example, but it is an over-simplification either to equate non-marriage with living alone and with the lack of domestic support, or to equate marriage with the presence of other household or family members who can supply such support. Further investigation into the relationship between marital state, household structure, domestic support, and service use is needed.

Whatever the outcome of such investigations, the

results themselves will carry no normative implications for the way in which resources *should* be used. Even if hospital resources are being used more commonly by non-married patients for what may loosely be called social care, it should not be concluded that care is necessarily being provided where it is not needed, for this would presuppose the primacy of a definition of need that is couched exclusively in clinical terms, and that acknowledges a legitimate claim on the resources of the hospital only when the condition cannot be treated satisfactorily elsewhere. A more acceptable approach recognises that the ascription of need is a value judgement weighing perceived costs against perceived benefits: a need for a service exists only when the anticipated benefits of providing the service are judged to be worth the cost of its provision. It is a technical matter to identify all the costs and benefits that ideally should be known before choices are made (and much remains to be done here), but the point at which the perceived benefits are judged to be worth the perceived costs is bound to be reflective of values, and a range of conflicting values may be asserted in any situation where choices have to be made.

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